(12) UK Patent Application (19) GB (11) 2 240 801 (13) A

(43) Date of A publication 14.08.1991

(21) Application No 9100571.0

(22) Date of filing 10.01.1991

(30) Priority data
(31) 9000906 (32) 16.01.1990 (33) GB

(51) INT CL[5]
E01F 9/04

(52) UK CL (Edition K)
E1G GLN

(56) Documents cited
US 4697294 A

(58) Field of search
UK CL (Edition K) E1G
INT CL[5] E01F

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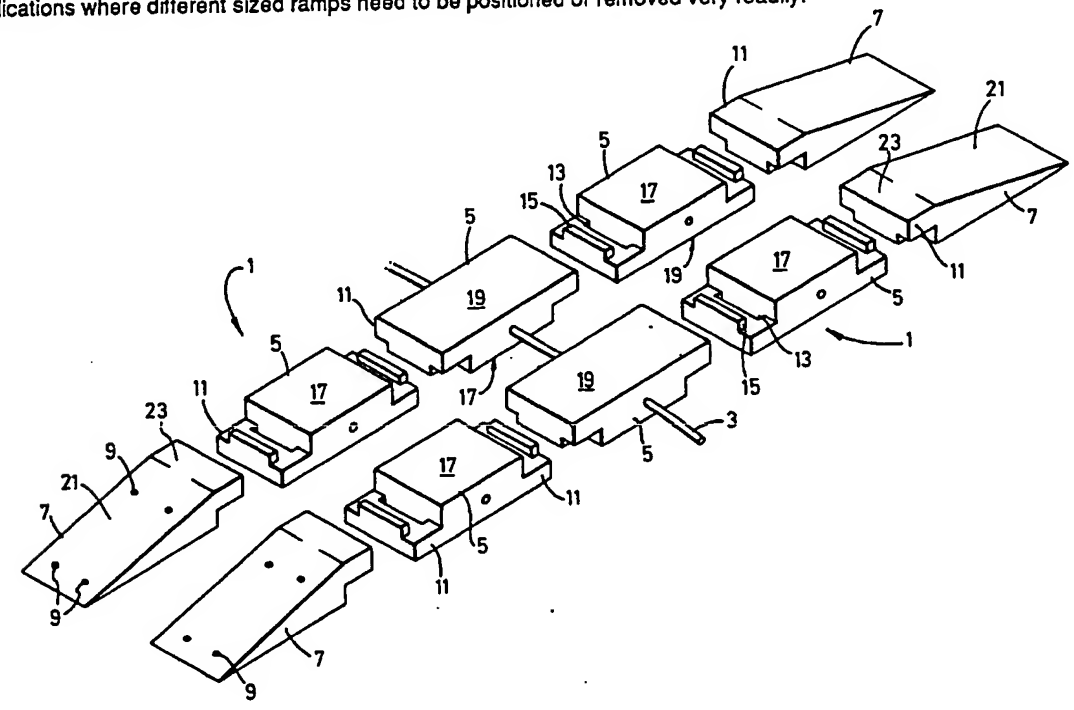
(54) Modular speed ramp

(57) A modular speed ramp comprising a plurality of laterally adjacent units 1 forming the width of the ramp, wherein each laterally adjacent unit is formed from a plurality of modules 5, 7, each module 5, 7 including means 11 for engaging an adjacent module 5, 7, in its longitudinal direction. A transroad cable 3 may be used to retain the central modules 5 in position, thereby helping to secure adjacent modules in position also. The modular speed ramp is particularly suited to applications where different sized ramps need to be positioned or removed very readily.



At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

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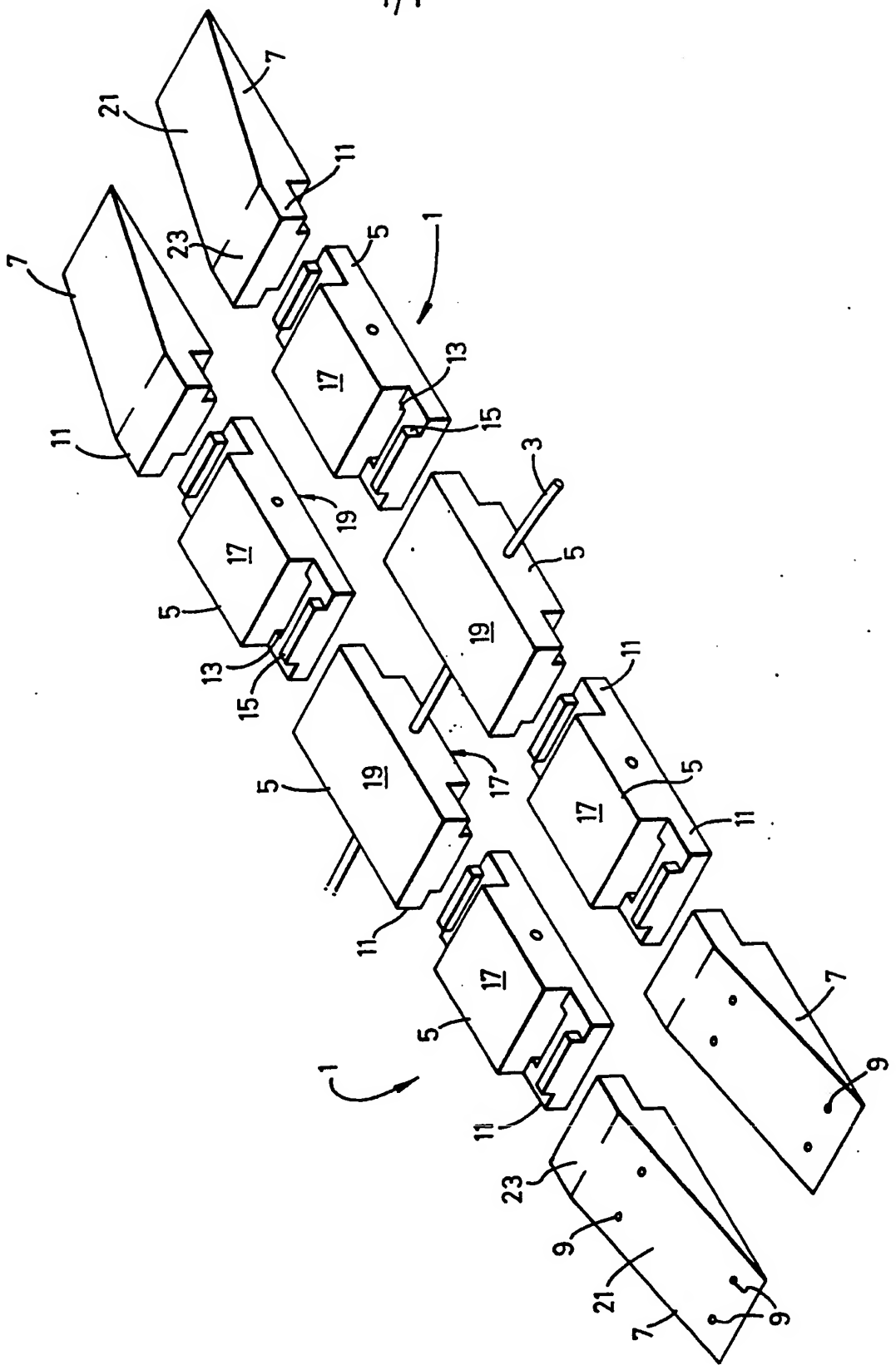
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MODULAR SPEED RAMP

This invention relates to modular speed ramps for restricting the speed of vehicles travelling thereover.

It is known from UK patent 2030197 to utilise a speed ramp which is modular in the lateral direction of the ramp. Such a speed ramp comprises segment-shaped modules, which are aligned by means of a rod passing therethrough across the width of the road, attached to the road by means of securing bolts. Each module is preferably attached to adjacent modules by means of male and female interlocking fittings. Although such prior art modular ramps have been most useful, they are not particularly practical when ramps having different lengths in the longitudinal direction are required, since it is necessary to manufacture segments of the required length.

Speed ramps which can be readily adjusted in longitudinal length are becoming more in demand since, by using such speed ramps, it is possible to regulate the speed of traffic travelling at many different speeds. In this regard, a long speed ramp is used to slow vehicles travelling at high speed, whereas a narrow speed ramp is used to regulate vehicles travelling at lower speeds.

In the light of the foregoing, there is a clear need for a modular speed ramp which may be readily assembled with a longitudinal length of desired magnitude, without having to manufacture specific sized units for the ramp. The present invention aims to satisfy this need and to overcome the problems associated with the prior art.

According to the present invention, there is provided a module for a modular speed ramp, having a working surface for contacting a vehicle passing thereover and means for engaging an adjacent module, wherein the module is shaped to form a portion only, in the longitudinal direction, of the spe d ramp.

The module preferably has working surfaces on two opposit faces such that it may be p sitioned, in us , with eith r its first working surfac or its second working

surface uppermost.

The engaging means may comprise flanges, extending from both ends of a body portion of the module, which mesh with flanges of adjacent modules. Each flange preferably includes a recess therein and a lug thereon arranged such that each recess is able to receive a lug of an adjacent identical module. It will, of course, be appreciated that many different forms of engagement means could be used to hold adjacent modules together.

In a preferred embodiment of the invention, each recess is adjacent to the body portion of the module and each lug is adjacent to the end of its respective flange. When using such an embodiment of the invention, a locking cable may extend the full width of the speed ramp through aligned holes in the modules and be fixed to the road at either side of the ramp.

Each module of a speed ramp is preferably made from a shock-resistant polymeric material. However, an additional reinforcement may be added to increase the life of the modules; such a reinforcement may be a metal channel within a recess or a metal cover overlaying a lug.

The present invention further provides a modular speed ramp comprising a plurality of laterally adjacent units forming the width of the ramp, wherein each laterally adjacent unit is formed from a plurality of modules, each module including means for engaging an adjacent module, in its longitudinal direction.

Preferably, each laterally adjacent unit includes one or more modules as herein described, together with a ramp module, having an inclined working surface, at each end.

In use, the most central module of each unit overlays its adjacent modules and is forced downwards by locking means to restrain the modules in position.

Preferably, the ramp modules each overlay modules adjacent thereto. Such ramp modules are preferably attached to the road surface by fixing plugs or bolts.

Preferably the ramp modules, where they taper to the road surface, are reinforced with additional polymeric

material to reduce wear and breakage.

Further, each ramp module preferably includes an inclined working surface and a substantially horizontal working surface extending therefrom. The horizontal working surface is arranged to cooperate, in use, with the working surface of an adjacent module. The inclusion of a substantially horizontal working surface on each ramp module helps to prevent excessive wear and degradation, which would otherwise occur if the ramp module were to abut its adjacent module at the top of the inclined working surface.

It is also preferable that the tapered end of each ramp module includes a downwardly extending tip portion. The inclusion of such a tip portion ensures that the leading edge of the ramp is held against the road surface, in use, due to the tension produced in the lower surface of the ramp module as the module is fixed to the road. Furthermore, since the tip portion straightens as the ramp module is fixed to the road surface, the upper surface of the module is compressed, thereby increasing the wear resistance of the ramp module in the important region where initial vehicle wheel impact occurs.

In a specific embodiment of the invention, which includes three modules forming the main body of each unit of the speed ramp and two inclined ramp modules, the three body modules are identical in shape and alternate in their orientation such that the flanges of the central module overlay the flanges of the adjacent outer modules. Flanges of the ramp modules then overlap corresponding flanges of the outer two body modules.

A specific embodiment of the present invention is now described by way of example only with reference to the accompanying drawing which shows a perspective exploded view of two longitudinal units of a speed ramp.

With reference to the drawing, a modular speed ramp includes a plurality of laterally adjacent units 1 aligned and joined by means of a transrad cable 3. The transrad cable 3 is attached at either side of the ramp to the road surface by means of fixing plugs, bolts or the like to hold

the complete ramp on the road surface.

Each unit 1 of the speed ramp includes a plurality of modules 5 which are joined in the longitudinal direction of the speed ramp to form the body of the unit 1. At either end of the group of modules 5, there is positioned inclined ramp modules 7 which, in use, are held onto the road surface by means of fixing devices 9, such as plugs or bolts. Each body module 5 includes flanges 11 extending from either end for meshing with flanges 11 of adjacent modules. Each flange 11 includes a recess 13 and a lug 15 which are adapted to interlock with a corresponding lug 15 and recess 13 of an adjacent module.

Each body module 5 has two opposed working surfaces 17, 19 suitable for receiving, in use, vehicles passing thereover. This arrangement enables adjacent modules 5 to be inverted such that the lugs 15 and recesses 13 may interlock in the desired fashion. As vehicles pass over the speed ramp, pressure is passed from a flange 11 of one module 5 to a flange 11 of an adjacent module which is being overlaid by the first module. To prevent undue wear between these flanges 11, a layer of reinforcing metal is positioned in the recesses 13 and over the lugs 15.

The ramp modules 7 each have an inclined working surface 21 and a substantially horizontal working surface 23. The horizontal working surfaces 23 are arranged to cooperate with the adjacent working surfaces 17 of the body modules 5. The inclusion of the horizontal working surfaces 23 helps to avoid excessive wear between the abutting ramp and body modules. Further, the ramp modules, where they taper to the road surface, are reinforced with additional polymeric material to reduce wear and breakage at these exposed leading edges.

Although not shown in the drawing, the tapered part of each ramp module 7, upon which the inclined working surface 21 is form d, includes a downwardly xt nding tip portion. In this regard, th inclined working surface 21 is manufactured with the majority of the surface at one angle of inclination and the r maining surface, on the tip

portion, at a steeper angle. The base of the ramp module 7 is essentially flat, except for the base of the tip portion which is inclined downwards from the flat region. This arrangement ensures that, as the ramp module 7 is attached to a road surface, the tip portion is raised so that the two portions of the inclined working surface 21 become aligned. Hence, the inclined working surface 21 is in compression during use, thereby increasing the wear resistance of the ramp module in this important region where initial vehicle wheel impact occurs. At the same time, since the base of the ramp module 7 is in tension, the leading edge of the ramp module 7 is continually urged into contact with the road surface.

As shown in the drawing, when each unit 1 includes three body modules 5, the most central module 5 overlays the outer two modules 5 and thereby holds the two outer modules 5 in position by means of the interlocking flanges 11 and the transroad cable 3. The exposed flanges 11 of the outer body modules 5 are overlaid by corresponding flanges of the ramp modules 7 which are fixed to the road surface by fixing devices 9, such as bolts or the like. In this way, the two outer body modules 5 are each held against the road surface at both ends.

If necessary, it would of course be possible to introduce additional transroad cables 3 through the other body modules 5 so that these too could be independently held to the road surface. Furthermore, if the length of the speed ramp is to be increased, additional body modules 5 may be introduced and each body module 5 which overlays an adjacent module would be held to the road surface by means of a transroad cable 3.

Since it is a transroad cable 3 which holds most of the speed ramp in position, it is a very simple task to remove the cabl 3 to fr the modules of the speed ramp when the ramp is to be removed or ext nd d etc. Hence, speed ramps according to the present inv ntion enable under-road surfac public services, such as water, gas and electricity, to be r adily installed r repaired without incurring excessive

cost for removing and r placing the speed ramp.

It will of course be understood that the present invention has been described purely by way of example, and that modifications of detail can be made within the scope of the invention.

CLAIMS

1. A module for a modular speed ramp, having a working surface for contacting a vehicle passing thereover and means for engaging an adjacent module, wherein the module is shaped to form a portion only, in the longitudinal direction, of the speed ramp.

2. A module as claimed in claim 1 which has working surfaces on two opposite faces such that it may be positioned, in use, with either its first working surface or its second working surface uppermost.

3. A module as claimed in claim 1 or claim 2, wherein the engaging means comprise flanges, extending from both ends of a body portion of the module, which, in use, mesh with flanges of adjacent modules.

4. A module as claimed in claim 3, wherein each flange includes a recess therein and a lug thereon arranged such that each recess is able to receive a lug of an adjacent identical module.

5. A module as claimed in claim 4, wherein each recess is adjacent to the body portion of the module and each lug is adjacent to the end of its respective flange.

6. A module as claimed in claim 5, wherein a metal reinforcement is included within each recess or overlays each lug.

7. A module as claimed in any preceding claim, further comprising a hole therethrough for receiving, in use, a transroad locking cable.

8. A module as claimed in any preceding claim which is made of shock-resistant polymeric material.

9. A modular speed ramp comprising a plurality of laterally adjacent units forming the width of the ramp, wherein each laterally adjacent unit is formed from a plurality of modules, each module including means for ngaging an adjacent module, in its longitudinal dir ction.

10. A ramp as claimed in claim 9, wherein each lat rally adjacent unit includes one or more modules according to any one of claims 1 to 8 and a ramp module,

having an inclined working surface, at each end.

11. A ramp as claimed in claim 10, wh rein the ramp modules each overlay their adjacent modules.

12. A ramp as claimed in claim 10 or claim 11, wherein the ramp modules are attached to a road surface by fixing plugs or bolts.

13. A ramp as claimed in claim 10, claim 11 or claim 12, wherein the ramp modules, where they taper to the road surface, are reinforced with additional polymeric material to reduce wear and breakage.

14. A ramp as claimed in any one of claims 10-13, wherein each ramp module includes an inclined working surface and a substantially horizontal working surface extending therefrom.

15. A ramp as claimed in any one of claims 10-14, wherein each ramp module, when not in use, includes a downwardly extending tip portion at its tapered end.

16. A ramp as claimed in any one of claims 10-15, wherein each unit includes three modules forming a main body and two inclined ramp modules, the three body modules being identical in shape and alternating in their orientation such that the flanges of the central module overlay flanges of the adjacent outer modules.

17. A module substantially as hereinbefore described with reference to and as shown in the accompanying drawing.

18. A modular speed ramp substantially as hereinbefore described with reference to and as shown in the accompanying drawing.

Published 1991 at The Patent Office, State House, 66/71 High Holborn, London WC1R 4TP. Further copies may be obtained from Sales Branch, Unit 6, Nine Mile Point, Cwmfelinfach, Cross Keys, Newport, NP1 7HZ. Printed by Multiplex techniques ltd, St Mary Cray, Kent.